

III. REMARKS

Claims 1-14, 16 and 17 are not unpatentable under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement.

The Examiner admits in section 7 of the last Office Action that the specification on page 5 explains how a synchronization symbol can be determined from a channel coefficient h and Fig. 5 discloses step 403 of starting the transmission pattern from the start of each frame. However, the Examiner states that the description does not explain *how* the step of starting the transmission pattern from the beginning in the beginning of each frame *relates* to the claimed step of enabling the receiver to determine a correct channel coefficient with each transmitted symbol.

Apparently the Examiner is stating that just the pattern arrangement cannot help in actually determining the channel coefficients. Applicants agree. Determining the channel coefficients, i.e., finding out the impulse response of a channel, is an art as such, and requires advanced signal processing as known in the art. What the independent claims state is that once one has calculated the actual channel coefficients, which may be designated as channel coefficient A and channel coefficient B, the arrangement of symbols and the starting the pattern anew at the beginning of each frame helps one to know that channel coefficient A is valid, for example, for the first, third, fifth, and sixth symbols in the frame, and channel coefficient B is valid for the others. This depends on what the transmission pattern indicates about transmitting particular symbols through particular antennas. One must remember that both the transmitting device and the receiving device have the transmission pattern stored in advance. Also, both devices have stored that the transmission pattern starts anew at the beginning of each frame. Thus the transmission pattern enables the receiving device to quickly recognize, with the maximum delay of one frame duration, which symbols come through which antenna. "Maximum delay" means that if the receiving device is switched on at an arbitrary moment of time, it does not know, which symbol

of the frame is the one currently being received on the downlink. This uncertainty does not last longer than till the next frame boundary, because when the subsequent full frame starts, the receiving device knows for sure which symbol is which. The procedure of how to achieve frame synchronization is outside the scope of this invention; it is a technique known in the art.

Claim 1 has been amended to recite "wherein the transmission of each symbol of the sequence of symbols is with a certain transmission pattern that indicates through which transmission antenna each transmitted symbol is transmitted,

-starting the transmission of the sequence of symbols from a predefined antenna, and

-enabling a receiver to associate a correct transmission antenna specific channel coefficient with each symbol by starting the transmission pattern from the beginning in the beginning of each frame."

It is respectfully submitted that the above-described limitations clearly recite how the claimed invention enables the receiver to determine the correct channel coefficient from starting the transmission pattern from the beginning in the beginning of each frame. These limitations are supported by the description (page 8, lines 7-25) and drawings (Figs. 4-6). Further, since the DSP techniques for determining the channel coefficients are known in the art, they need not be presently described, Webster Loom Co. v. Higgins, 105 U.S. 580.

The remaining independent claims have been similarly amended.

Thus the rejection of claims 1-14, 16 and 17 under 35 U.S.C. 112, first paragraph, should be withdrawn.

Claims 1, 6-8 and 11-13 are not unpatentable under 35 U.S.C. 102(e) as being anticipated by Alamouti.

As discussed above, claim 1 now recites " A method for transmitting a certain sequence of symbols...comprising...the transmission of each symbol of the sequence of symbols is with a certain transmission pattern that indicates through which transmission antenna each transmitted symbol is transmitted, enabling a receiver to associate a correct transmission antenna specific channel coefficient with each symbol by starting the transmission pattern from the beginning in the beginning of each frame."

As previously stated in detail:

1. Alamouti does not disclose that his transmission sequence would have any correlation with frames, or that it be started anew at the beginning of each frame as recited in the present independent claims. While the Examiner cites col. 4, ll. 14-24, for these features, it is respectfully submitted that there is no disclosure of a frame therein.
2. Alamouti does not disclose correctly associating the antenna specific channel estimates with the appropriate transmission antennas as in the presently claimed invention. Alamouti merely specifies a certain way of introducing redundancy in the transmission of data symbols so that error probability in receiving and decoding would become lower.

Since the above-described and claimed limitations are not in Alamouti, the rejection of claims 1, 6-8 and 11-13 under 35 U.S.C. 102(e) should be withdrawn.

Claims 9 and 17 are not unpatentable under 35 U.S.C. 103(a) over Alamouti.

The present invention is for the problem of determining the correct channel coefficient, while Alamouti is for the problem of transmission errors. Thus the above-discussed starting the transmission pattern and associating the correct channel coefficient claimed

features are not obvious in view of Alamouti, *i.e.*, it is not obvious to modify Alamouti to have the claimed features, see MPEP 2143.01. Hence the rejection of claims 9 and 17 should be withdrawn.

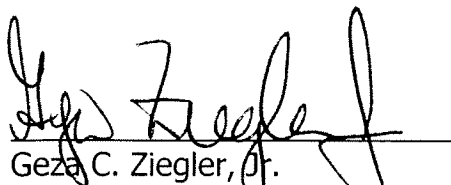
Claims 10, 14 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Alamouti in view of admitted prior art.

Since the admitted prior art also fails to disclose the above-discussed and claimed transmission pattern starting and channel coefficient features, combining it with Alamouti does not result in the claimed invention. Thus the rejection of claims 10, 14 and 16 should be withdrawn.

For all of the foregoing reasons, it is respectfully submitted that all of the claims now present in the application are clearly novel and patentable over the prior art of record, and are in proper form for allowance. Accordingly, favorable reconsideration and allowance is respectfully requested. Should any unresolved issues remain, the Examiner is invited to call Applicants' attorney at the telephone number indicated below.

The Commissioner is hereby authorized to charge payment for the two (2) month extension fee (\$450) as well as any other fees associated with this communication or credit any over payment to Deposit Account No. 16-1350.

Respectfully submitted,


Geza C. Ziegler, Jr.
Reg. No. 44,004

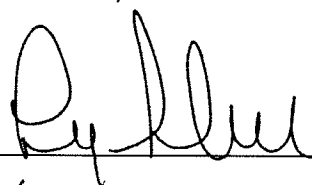
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Perman & Green, LLP
425 Post Road
Fairfield, CT 06824
(203) 259-1800
Customer No.: 2512

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